Math 212
Quiz 31

W 16 Nov 2016

Your name: _____

Exercise

(2 pt) Let $C \subseteq \mathbf{R}^2$ be the circle of radius 1 centered at the origin, oriented counterclockwise. Use Green's theorem to rewrite the line integral

$$\int_C \left(3y - e^{\sin x}\right) dx + \left(7x + \sqrt{y^4 + 1}\right) dy$$

as an iterated (!) integral over the appropriate region $D \subseteq \mathbf{R}^2$. *Hint:* Green's theorem changes (i) the integrand (think curl) and (ii) the region of integration (view C as the boundary of D). The iterated integral is most easily expressed in polar coordinates (mind the integration factor!).